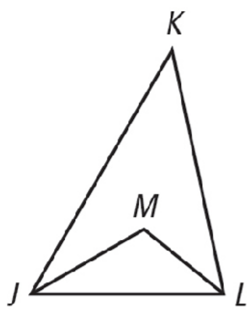
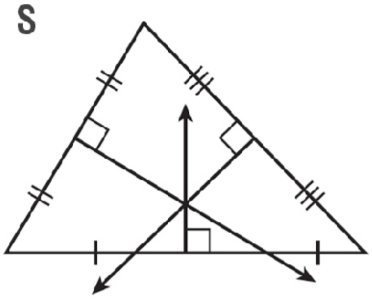
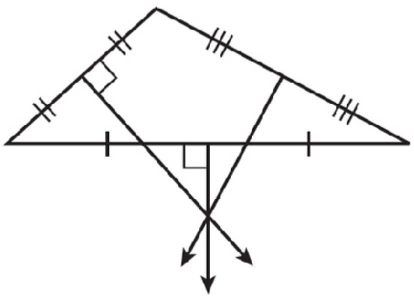
Question	Answer
12.	59.7
15.	63.9
16.	$(-2.5, 7)$
17.	$(-1.5, 9.5)$
18.	8.37
19.	55°
20.	By the Circumcenter Thm., the circumcenter of the $\triangle$ is equidistant from the vertices. Draw the $\triangle$ formed by the cities, and draw the $\perp$ bisectors of the sides. The main office should be located at M, the circumcenter.

Question	Answer
21.	 Possible answer: If $\angle JML$ is a rt. $\angle$, then $m\angle MJL + m\angle MLJ = 90°$ because the acute $\angle$s of a rt. $\triangle$ are comp. Since M is the incenter of $\triangle JKL$, $\overrightarrow{JM}$ and $\overrightarrow{LM}$ are $\angle$ bisectors of $\triangle JKL$. So by the def. of $\angle$ bisector, $m\angle KJL = 2m\angle MJL$ and $m\angle KLJ = 2m\angle MLJ$. By subst., $m\angle KJL + m\angle KLJ = 2(m\angle MJL + m\angle MLJ) = 2(90°) = 180°$. But by the $\triangle$ Sum Thm., $m\angle K = 180° - (m\angle KJL + m\angle KLJ) = 180° - 180° = 0°$. This would mean that $\triangle JKL$ is not a $\triangle$. Therefore $\angle JML$ cannot be a rt. $\angle$.
22.	The angle bisector; $m\angle BAE = m\angle EAC$

Question	Answer
32.	S  
37a.	$\left(4, -\frac{7}{6}\right)$
37b.	outside
37c.	4.2 mi
38.	Possible answers: Similarities: Both are circles. Both intersect the triangle in exactly 3 points. Differences: The inscribed circle is smaller than the circumscribed circle. Except for the points of intersection, the inscribed circle lies inside the triangle, while the circumscribed circle lies outside. The center of the inscribed circle is always inside the triangle, while the center of the circumscribed circle may be inside, outside, or on the triangle. The center of the inscribed circle is the point of concurrency of the angle bisectors, while the center of the circumscribed circle is the point of concurrency of the perpendicular bisectors.